

Sheet (2)

Break – Even analysis

No. 1

A company now has a total sales volume of L.E. 2 million on four products produced in the mill. The sale and production cost are as follows:-

	A	B	C	D
Percentage of total sales.	10	20	30	40
Contribution (percent of selling price per unit)	45	40	45	35
Fixed cost charges L.E	70,000	180,000	210,000	220,000
Profit L.E	20,000	-20,000	60,000	60,000

Recognizing the loss incurred with product B, the company is considering dropping the product. If it is dropped, the sales volume will decrease to L.E. 1.8 million and the sales and cost pattern will change to the following figures:

	A	C	D
Percent of total sales	15	35	50
Contribution (percent of b)	45	45	35
Fixed cost charges L.E	100,000	250,000	280,000

Should product B be dropped? How do you account for the decrease of only L.E. 40,000 instead of L.E 180,000 in fixed costs for the revised product mix?

No. 2

Another alternative for the product mix described in problem No. 1 is to substitute a different product for B, called BB. If BB replaces B, total sales volume and the sales cost figures for product A and C will remain unchanged. The new value for D are : percent of sales = 45, contribution (percent of b) = 35, fixed cost charged = L.E. 275, 000 and the profit = L.E. 40,000. For an increase in total profit of L.E. 10,000 and an increase in total fixed cost of L.E. 15,000, what will the contribution rate be for the product BB?

No. 3

Given a non linear price function of

$$\begin{aligned} b &= 21,000 Q^{-1/2} && \text{L. E. per unit} \\ a &= 1000 && \text{L.E. per unit} \\ F &= 1000,000 && \text{L. E. per period} \end{aligned}$$

Determine :-

- The breakeven point.
- The production level for maximum profit

No. 4

Operating expenses and revenue for a manufacturing plant are closely approximately by the following relationships:

$$\text{Revenue} = 100 Q - 0.001 Q^2 \quad \text{L.E.}$$

$$\text{Total cost} = 0.005 Q^2 + 4 Q + 200,000 \quad \text{L.E.}$$

a- What is the output for maximum profit?

b- What is the output at the BEP ?

c- What is the output for minimum average cost ?

No. 5

The BEP of a product occurs at a sales income of L.E. 120,000 but normally the sales income is L.E. 180,000, the fixed costs being L.E. 100,000. A new product involved additional costs of L.E. 20,000 but the P/V ratio was improved by 20% and sales income increased to L.E. 240,000. What net profit did the new design yield?